

Date: Sun, 27 Mar 94 04:30:40 PST  
From: Ham-Space Mailing List and Newsgroup <ham-space@ucsd.edu>  
Errors-To: Ham-Space-Errors@UCSD.Edu  
Reply-To: Ham-Space@UCSD.Edu  
Precedence: Bulk  
Subject: Ham-Space Digest V94 #72  
To: Ham-Space

Ham-Space Digest

Sun, 27 Mar 94

Volume 94 : Issue 72

Today's Topics:

\* SpaceNews 28-Mar-94 \*  
Epoch Day Calculation  
ORBS\$084.2L.AMSAT  
ORBS\$084.MICRO.AMSAT  
ORBS\$084.MISC.AMSAT  
ORBS\$084.OSCAR.AMSAT  
ORBS\$084.WEATH.AMSAT

Send Replies or notes for publication to: <Ham-Space@UCSD.Edu>

Send subscription requests to: <Ham-Space-REQUEST@UCSD.Edu>

Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Space Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-space".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

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Date: Fri, 25 Mar 1994 10:05:13 MST  
From: agate!howland.reston.ans.net!math.ohio-state.edu!cyber2.cyberstore.ca!  
nntp.cs.ubc.ca!utcsri!newsflash.concordia.ca!canopus.cc.umanitoba.ca!  
tribune.usask.ca!kakwa.ucs.ualberta@ihnp4.ucsd.edu  
Subject: \* SpaceNews 28-Mar-94 \*  
To: ham-space@ucsd.edu

SB NEWS @ AMSAT \$SPC0328  
\* SpaceNews 28-Mar-94 \*

BID: \$SPC0328

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SpaceNews

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MONDAY MARCH 28, 1994

SpaceNews originates at KD2BD in Wall Township, New Jersey, USA. It is published every week and is made available for unlimited distribution.

\* ITAMSAT PROBLEM \*

=====

Earlier this month, the PSK modulation on the primary ITAMSAT transmitter became more and more difficult to decode. A residual carrier and lower output power seem to indicate a failure in the PSK balanced modulator, being worse at the current low power setting. Increasing the power level makes the demodulation better but is not acceptable due to power budget constraints. Ground controllers decided to switch to the secondary PSK transmitter on 435.822 MHz. The first two passes over Italy confirmed the correct operation of the spacecraft and WOD are being taken to analyze the performance of the satellite in this new configuration. The BBS is working as usual and status bulletins are uploaded to the satellite.

73 de ITAMSAT (IO-26) Command Team

[Info via Alberto E. Zagni, I2KBD]

\* CLEMENTINE IMAGES AVAILABLE \*

=====

Recent images of the Moon that were downlinked by the Clementine spacecraft are available by ftp or email across the Internet. For those with ftp access, simply ftp to clementine.s1.gov [128.15.32.9] and look in the directories under pub/clementine/images. For those with email only, send a message to ftpmail@clementine.s1.gov with a blank subject line and text of "help" only. The email server can provide directory listings and uuencoded binary files such as GIF images.

[Info via Walt, KE3HP]

\* OSCAR-13 MODE-S EXTRA BEACON \*

=====

In response to requests, the Mode-S session now includes 2 MAs beacon at the start. Mode-B is unaffected. The revised schedule is:

M QST \*\*\* AO-13 TRANSPONDER SCHEDULE \*\*\* 1994 Mar 19-Apr 04

Mode-B : MA 0 to MA 90 |

Mode-BS : MA 90 to MA 120 |  
Mode-S : MA 120 to MA 122 |<- S beacon only  
Mode-S : MA 122 to MA 145 |<- S transponder; B trsp. is OFF  
Mode-S : MA 145 to MA 150 |<- S beacon only  
Mode-BS : MA 150 to MA 180 | Alon/Alat 180/0  
Mode-B : MA 180 to MA 256 |  
Omnis : MA 230 to MA 30 | Move to attitude 235/0, Apr 04

[Info via James Miller G3RUH @ GB7DDX.#22.GBR.EU]

\* F0-20 SCHEDULE \*

=====

The F0-20 command station announced that F0-20 will be placed in Mode JA (Analog transponder mode) during Field Day 1994 (25-Jun-94 18:00 UTC through 26-Jun-94 18:00 UTC).

The current operating schedule is as follows:

Analog mode:

23-Mar-94 07:52 -to- 30-Mar-94 08:15 UTC

Digital mode: Unless otherwise noted above.

[Info via Kazu Sakamoto, JJ1WTK]

\* THANKS! \*

=====

Thanks to BY1QH and K7YHA for the high praise SpaceNews received in articles appearing in the April 1994 issues of 73 and Worldradio magazines! Also thanks to WA1QYM and DL3HRT for their recent messages of appreciation.

\* MESSAGES de KD2BD \*

=====

G8MWF: Please re-send your WXSAT article. I lost the disk I had it saved to. :-(

\* FEEDBACK/INPUT WELCOMED \*

=====

Mail to SpaceNews should be directed to the editor (John, KD2BD) via any of the following paths:

FAX : 1-908-747-7107  
PACKET : KD2BD @ N2KZH.NJ.USA.NA

INTERNET : kd2bd@ka2qhd.ocpt.ccur.com -or- kd2bd@amsat.org

MAIL : John A. Magliacane, KD2BD  
Department of Engineering and Technology  
Advanced Technology Center  
Brookdale Community College  
Lincroft, New Jersey 07738  
U.S.A.

<<-- SpaceNews: The first amateur newsletter read in space! -->>

/EX

--  
John A. Magliacane, KD2BD \* /\\*\ \* Voice : 1-908-224-2948  
Advanced Technology Center |/\|/\| Packet : KD2BD @ N2KZH.NJ.USA.NA  
Brookdale Community College |/\|/\| Internet: kd2bd@ka2qhd.ocpt.ccur.com  
Lincroft, NJ 07738 \* /\\*\ \* Morse : - . - . . . . - . . . . .

-----

Date: 26 Mar 94 23:19:02 GMT  
From: news-mail-gateway@ucsd.edu  
Subject: Epoch Day Calculation  
To: ham-space@ucsd.edu

I'm new to satellite tracking, and my tracking program requires an entry for "epoch day." I have only been able to find data for "epoch time," and from the examples included with the program this does not appear to be what the program (PCT3.EXE) requires. How do I calculate Epoch Day or where can I find the information? Any help would be greatly appreciated!

73,  
Joe  
WI2E

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Date: Fri, 25 Mar 1994 06:59:00 MST  
From: usc!math.ohio-state.edu!cyber2.cyberstore.ca!nntp.cs.ubc.ca!utcsri!  
newsflash.concordia.ca!canopus.cc.umanitoba.ca!tribune.usask.ca!  
kakwa.ucs.ualberta.ca!quartz.ucs.ualberta.@@ihnp4.ucsd.edu  
Subject: ORBS\$084.2L.AMSAT  
To: ham-space@ucsd.edu

SB KEPS @ AMSAT \$ORBS-084.N  
2Line Orbital Elements 084.AMSAT

HR AMSAT ORBITAL ELEMENTS FOR AMATEUR SATELLITES IN NASA FORMAT  
FROM WA5QGD FORT WORTH, TX March 25, 1994  
BID: \$ORBS-084.N

DECODE 2-LINE ELSETS WITH THE FOLLOWING KEY:

1 AAAAAU 00 0 0 BBBBB.BBBBBBBB .CCCCCCC 00000-0 00000-0 0 DDDZ  
2 AAAAAA EEE.EEEE FFF.FFFF GGGGGGG HHH.HHHH III.IIII JJ.JJJJJJJJKKKKZ  
KEY: A-CATALOGNUM B-EPOCHTIME C-DECAY D-ELSETNUM E-INCLINATION F-RAAN  
G-ECCENTRICITY H-ARGPERIGEE I-MNANOM J-MNMOTION K-ORBITNUM Z-CHECKSUM

TO ALL RADIO AMATEURS BT

A0-10

1 14129U 83058B 94078.88849305 -.00000143 00000-0 10000-3 0 2710  
2 14129 27.1881 336.3846 6021341 163.5017 230.9609 2.05878514 80949

U0-11

1 14781U 84021B 94080.50956311 .00000321 00000-0 62308-4 0 6757  
2 14781 97.7914 99.3260 0011137 186.0140 174.0935 14.69174575537432

RS-10/11

1 18129U 87054A 94079.84948217 .00000032 00000-0 18660-4 0 8839  
2 18129 82.9229 34.1304 0010237 273.8387 86.1598 13.72333391337792

A0-13

1 19216U 88051B 94079.56167208 -.00000427 00000-0 10000-4 0 8960  
2 19216 57.8735 262.2374 7209738 337.3974 2.4979 2.09727288 44154

F0-20

1 20480U 90013C 94080.89109631 -.00000016 00000-0 34911-4 0 6701  
2 20480 99.0243 249.2547 0540894 177.1640 183.2749 12.83224747192930

A0-21

1 21087U 91006A 94080.39087956 .00000093 00000-0 82657-4 0 4463  
2 21087 82.9379 207.6619 0035401 331.2194 28.7007 13.74536127157528

RS-12/13

1 21089U 91007A 94079.90823919 .00000032 00000-0 18216-4 0 6733  
2 21089 82.9180 76.9195 0029938 357.6064 2.4956 13.74037183156521

ARSENE

1 22654U 93031B 94064.50000000 -.00000119 00000-0 00000 0 0 2469  
2 22654 1.6510 105.2680 2927552 173.8780 198.1380 1.42201225 2991

U0-14

1 20437U 90005B 94081.17271111 .00000085 00000-0 50080-4 0 9757  
2 20437 98.5928 167.1239 0011938 85.5805 274.6738 14.29832075217155

A0-16

1 20439U 90005D 94080.46187457 .00000059 00000-0 39719-4 0 7754  
2 20439 98.5999 167.5628 0012341 89.1267 271.1308 14.29886627217069

D0-17

1 20440U 90005E 94080.42475274 .00000076 00000-0 46272-4 0 7749  
2 20440 98.5973 167.8190 0012406 88.5722 271.6879 14.30025717217077

W0-18

1 20441U 90005F 94081.23816758 .00000086 00000-0 50302-4 0 7768

2 20441 98.6015 168.6325 0013015 86.3234 273.9433 14.30001255217191  
 L0-19  
 1 20442U 90005G 94080.24263321 .00000078 00000-0 46967-4 0 7742  
 2 20442 98.6015 167.8834 0013223 87.9281 272.3415 14.30095566217065  
 U0-22  
 1 21575U 91050B 94079.70081566 .00000111 00000-0 52198-4 0 4769  
 2 21575 98.4399 155.9592 0007223 188.8493 171.2552 14.36900838140375  
 K0-23  
 1 22077U 92052B 94080.53661719 -.00000037 00000-0 10000-3 0 3714  
 2 22077 66.0814 103.5014 0011679 308.7258 51.2714 12.86285587 75516  
 A0-27  
 1 22825U 93061C 94081.11877430 .00000025 00000-0 28178-4 0 2722  
 2 22825 98.6600 157.7790 0009554 101.5696 258.6548 14.27613987 25268  
 I0-26  
 1 22826U 93061D 94081.10608673 .00000042 00000-0 34690-4 0 2728  
 2 22826 98.6605 157.7921 0009917 100.6730 259.5579 14.27717009 25266  
 K0-25  
 1 22830U 93061H 94080.22548462 .00000089 00000-0 53029-4 0 2755  
 2 22830 98.5601 155.1027 0012635 74.3234 285.9328 14.28041738 25144  
 NOAA-9  
 1 15427U 84123A 94081.96146229 .00000121 00000-0 88127-4 0 7596  
 2 15427 99.0648 131.4010 0015937 101.6666 258.6297 14.13600524478169  
 NOAA-10  
 1 16969U 86073A 94082.90887763 .00000064 00000-0 45657-4 0 6589  
 2 16969 98.5123 94.5094 0012333 216.3165 143.7179 14.24874536390466  
 MET-2/17  
 1 18820U 88005A 94080.22884509 .00000094 00000-0 70460-4 0 2738  
 2 18820 82.5454 338.5623 0018465 67.8592 292.4524 13.84711844310182  
 MET-3/2  
 1 19336U 88064A 94081.32685617 .00000051 00000-0 10000-3 0 2700  
 2 19336 82.5427 25.1440 0017958 116.8969 243.3993 13.16965967271824  
 NOAA-11  
 1 19531U 88089A 94083.23885812 .00000062 00000-0 58133-4 0 5722  
 2 19531 99.1670 70.0925 0012545 15.7107 344.4450 14.12969487283226  
 MET-2/18  
 1 19851U 89018A 94080.40680956 .00000034 00000-0 17134-4 0 2720  
 2 19851 82.5191 213.8899 0015509 110.5826 249.6996 13.84358994255545  
 MET-3/3  
 1 20305U 89086A 94082.55451529 .00000044 00000-0 10000-3 0 61  
 2 20305 82.5548 329.1930 0006520 134.5372 225.6269 13.04425118211734  
 MET-2/19  
 1 20670U 90057A 94080.04388230 .00000024 00000-0 79036-5 0 7742  
 2 20670 82.5426 278.4813 0017557 35.8879 324.3453 13.84190186188420  
 FY-1/2  
 1 20788U 90081A 94082.50755940 -.00000152 00000-0 -72818-4 0 9249  
 2 20788 98.8351 105.3769 0013462 244.9487 115.0282 14.01311177181708  
 MET-2/20  
 1 20826U 90086A 94081.16757303 .00000046 00000-0 28563-4 0 7834

2 20826 82.5237 215.2023 0012267 296.1467 63.8429 13.83574940175723  
MET-3/4  
1 21232U 91030A 94080.99666993 .00000051 00000-0 10000-3 0 6819  
2 21232 82.5384 231.2188 0014561 45.1711 315.0592 13.16460562139881  
NOAA-12  
1 21263U 91032A 94074.00396538 .00000180 00000-0 10013-3 0 9646  
2 21263 98.6278 103.8182 0013418 145.8585 214.3456 14.22379795147143  
MET-3/5  
1 21655U 91056A 94080.22430161 .00000051 00000-0 10000-3 0 6885  
2 21655 82.5573 178.8593 0014769 59.6601 300.6003 13.16828445124883  
MET-2/21  
1 22782U 93055A 94080.53840969 .00000026 00000-0 10250-4 0 2834  
2 22782 82.5471 275.8954 0023357 108.2430 252.1263 13.83002864 27979  
POSAT  
1 22829U 93061G 94081.13993678 .00000098 00000-0 57325-4 0 2659  
2 22829 98.6563 157.8404 0011057 89.9512 270.2938 14.28013136 25275  
MIR  
1 16609U 86017A 94083.32520032 .00009346 00000-0 12671-3 0 5375  
2 16609 51.6456 251.6581 0015343 67.8161 292.4504 15.58331750462819  
HUBBLE  
1 20580U 90037B 94080.23738730 .00000835 00000-0 68306-4 0 4592  
2 20580 28.4697 80.9010 0005913 249.5279 110.4672 14.90534070 16255  
GRO  
1 21225U 91027B 94079.53676843 .00004336 00000-0 97694-4 0 752  
2 21225 28.4636 127.3366 0003390 287.6252 72.3973 15.40420925 43255  
UARS  
1 21701U 91063B 94082.87298435 -.00003323 00000-0 -26935-3 0 4962  
2 21701 56.9828 140.9350 0004265 92.4899 267.6620 14.96488088138165  
/EX

-----

Date: Fri, 25 Mar 1994 06:51:00 MST  
From: usc!math.ohio-state.edu!cyber2.cyberstore.ca!nntp.cs.ubc.ca!utcsri!  
newsflash.concordia.ca!canopus.cc.umanitoba.ca!tribune.usask.ca!  
kakwa.ucs.ualberta.ca!quartz.ucs.ualberta.@@ihnp4.ucsd.edu  
Subject: ORBS\$084.MICRO.AMSAT  
To: ham-space@ucsd.edu

SB KEPS @ AMSAT \$ORBS-084.D  
Orbital Elements 084.MICROS

HR AMSAT ORBITAL ELEMENTS FOR THE MICROSATS  
FROM WA5QGD FORT WORTH,TX March 25, 1994  
BID: \$ORBS-084.D  
TO ALL RADIO AMATEURS BT

Satellite: U0-14

Catalog number: 20437  
Epoch time: 94081.17271111  
Element set: 975  
Inclination: 98.5928 deg  
RA of node: 167.1239 deg  
Eccentricity: 0.0011938  
Arg of perigee: 85.5805 deg  
Mean anomaly: 274.6738 deg  
Mean motion: 14.29832075 rev/day  
Decay rate: 8.5e-07 rev/day^2  
Epoch rev: 21715  
Checksum: 326

Satellite: A0-16  
Catalog number: 20439  
Epoch time: 94080.46187457  
Element set: 775  
Inclination: 98.5999 deg  
RA of node: 167.5628 deg  
Eccentricity: 0.0012341  
Arg of perigee: 89.1267 deg  
Mean anomaly: 271.1308 deg  
Mean motion: 14.29886627 rev/day  
Decay rate: 5.9e-07 rev/day^2  
Epoch rev: 21706  
Checksum: 351

Satellite: D0-17  
Catalog number: 20440  
Epoch time: 94080.42475274  
Element set: 774  
Inclination: 98.5973 deg  
RA of node: 167.8190 deg  
Eccentricity: 0.0012406  
Arg of perigee: 88.5722 deg  
Mean anomaly: 271.6879 deg  
Mean motion: 14.30025717 rev/day  
Decay rate: 7.6e-07 rev/day^2  
Epoch rev: 21707  
Checksum: 321

Satellite: W0-18  
Catalog number: 20441  
Epoch time: 94081.23816758  
Element set: 776  
Inclination: 98.6015 deg  
RA of node: 168.6325 deg  
Eccentricity: 0.0013015

Arg of perigee: 86.3234 deg  
Mean anomaly: 273.9433 deg  
Mean motion: 14.30001255 rev/day  
Decay rate: 8.6e-07 rev/day^2  
Epoch rev: 21719  
Checksum: 295

Satellite: L0-19  
Catalog number: 20442  
Epoch time: 94080.24263321  
Element set: 774  
Inclination: 98.6015 deg  
RA of node: 167.8834 deg  
Eccentricity: 0.0013223  
Arg of perigee: 87.9281 deg  
Mean anomaly: 272.3415 deg  
Mean motion: 14.30095566 rev/day  
Decay rate: 7.8e-07 rev/day^2  
Epoch rev: 21706  
Checksum: 301

Satellite: U0-22  
Catalog number: 21575  
Epoch time: 94079.70081566  
Element set: 476  
Inclination: 98.4399 deg  
RA of node: 155.9592 deg  
Eccentricity: 0.0007223  
Arg of perigee: 188.8493 deg  
Mean anomaly: 171.2552 deg  
Mean motion: 14.36900838 rev/day  
Decay rate: 1.11e-06 rev/day^2  
Epoch rev: 14037  
Checksum: 329

Satellite: K0-23  
Catalog number: 22077  
Epoch time: 94080.53661719  
Element set: 371  
Inclination: 66.0814 deg  
RA of node: 103.5014 deg  
Eccentricity: 0.0011679  
Arg of perigee: 308.7258 deg  
Mean anomaly: 51.2714 deg  
Mean motion: 12.86285587 rev/day  
Decay rate: -3.7e-07 rev/day^2  
Epoch rev: 7551  
Checksum: 301

Satellite: A0-27  
Catalog number: 22825  
Epoch time: 94081.11877430  
Element set: 272  
Inclination: 98.6600 deg  
RA of node: 157.7790 deg  
Eccentricity: 0.0009554  
Arg of perigee: 101.5696 deg  
Mean anomaly: 258.6548 deg  
Mean motion: 14.27613987 rev/day  
Decay rate: 2.5e-07 rev/day^2  
Epoch rev: 2526  
Checksum: 327

Satellite: I0-26  
Catalog number: 22826  
Epoch time: 94081.10608673  
Element set: 272  
Inclination: 98.6605 deg  
RA of node: 157.7921 deg  
Eccentricity: 0.0009917  
Arg of perigee: 100.6730 deg  
Mean anomaly: 259.5579 deg  
Mean motion: 14.27717009 rev/day  
Decay rate: 4.2e-07 rev/day^2  
Epoch rev: 2526  
Checksum: 313

Satellite: K0-25  
Catalog number: 22830  
Epoch time: 94080.22548462  
Element set: 275  
Inclination: 98.5601 deg  
RA of node: 155.1027 deg  
Eccentricity: 0.0012635  
Arg of perigee: 74.3234 deg  
Mean anomaly: 285.9328 deg  
Mean motion: 14.28041738 rev/day  
Decay rate: 8.9e-07 rev/day^2  
Epoch rev: 2514  
Checksum: 295

/EX

-----  
Date: Fri, 25 Mar 1994 06:57:00 MST

From: agate!howland.reston.ans.net!math.ohio-state.edu!cyber2.cyberstore.ca!  
nntp.cs.ubc.ca!utcsri!newsflash.concordia.ca!canopus.cc.umanitoba.ca!  
tribune.usask.ca!kakwa.ucs.ualberta@ihnp4.ucsd.edu  
Subject: ORBS\$084.MISC.AMSAT  
To: ham-space@ucsd.edu

SB KEPS @ AMSAT \$ORBS-084.M  
Orbital Elements 084.MISC

HR AMSAT ORBITAL ELEMENTS FOR MANNED AND MISCELLANEOUS SATELLITES  
FROM WA5QGD FORT WORTH,TX March 25, 1994  
BID: \$ORBS-084.M  
TO ALL RADIO AMATEURS BT

Satellite: POSAT  
Catalog number: 22829  
Epoch time: 94081.13993678  
Element set: 265  
Inclination: 98.6563 deg  
RA of node: 157.8404 deg  
Eccentricity: 0.0011057  
Arg of perigee: 89.9512 deg  
Mean anomaly: 270.2938 deg  
Mean motion: 14.28013136 rev/day  
Decay rate: 9.8e-07 rev/day^2  
Epoch rev: 2527  
Checksum: 321

Satellite: MIR  
Catalog number: 16609  
Epoch time: 94083.32520032  
Element set: 537  
Inclination: 51.6456 deg  
RA of node: 251.6581 deg  
Eccentricity: 0.0015343  
Arg of perigee: 67.8161 deg  
Mean anomaly: 292.4504 deg  
Mean motion: 15.58331750 rev/day  
Decay rate: 9.346e-05 rev/day^2  
Epoch rev: 46281  
Checksum: 293

Satellite: HUBBLE  
Catalog number: 20580  
Epoch time: 94080.23738730  
Element set: 459  
Inclination: 28.4697 deg  
RA of node: 80.9010 deg

Eccentricity: 0.0005913  
Arg of perigee: 249.5279 deg  
Mean anomaly: 110.4672 deg  
Mean motion: 14.90534070 rev/day  
Decay rate: 8.35e-06 rev/day^2  
Epoch rev: 1625  
Checksum: 290

Satellite: GRO  
Catalog number: 21225  
Epoch time: 94079.53676843  
Element set: 75  
Inclination: 28.4636 deg  
RA of node: 127.3366 deg  
Eccentricity: 0.0003390  
Arg of perigee: 287.6252 deg  
Mean anomaly: 72.3973 deg  
Mean motion: 15.40420925 rev/day  
Decay rate: 4.336e-05 rev/day^2  
Epoch rev: 4325  
Checksum: 300

Satellite: UARS  
Catalog number: 21701  
Epoch time: 94082.87298435  
Element set: 496  
Inclination: 56.9828 deg  
RA of node: 140.9350 deg  
Eccentricity: 0.0004265  
Arg of perigee: 92.4899 deg  
Mean anomaly: 267.6620 deg  
Mean motion: 14.96488088 rev/day  
Decay rate: -3.323e-05 rev/day^2  
Epoch rev: 13816  
Checksum: 341

/EX

-----  
Date: Fri, 25 Mar 1994 06:48:00 MST  
From: usc!math.ohio-state.edu!cyber2.cyberstore.ca!nntp.cs.ubc.ca!utcsri!  
newsflash.concordia.ca!canopus.cc.umanitoba.ca!tribune.usask.ca!  
kakwa.ucs.ualberta.ca!quartz.ucs.ualberta.@@ihnp4.ucsd.edu  
Subject: ORBS\$084.OSCAR.AMSAT  
To: ham-space@ucsd.edu

SB KEPS @ AMSAT \$ORBS-084.0

Orbital Elements 084.OSCAR

HR AMSAT ORBITAL ELEMENTS FOR OSCAR SATELLITES  
FROM WA5QGD FORT WORTH,TX March 25, 1994  
BID: \$ORBS-084.0  
TO ALL RADIO AMATEURS BT

Satellite: A0-10  
Catalog number: 14129  
Epoch time: 94078.88849305  
Element set: 271  
Inclination: 27.1881 deg  
RA of node: 336.3846 deg  
Eccentricity: 0.6021341  
Arg of perigee: 163.5017 deg  
Mean anomaly: 230.9609 deg  
Mean motion: 2.05878514 rev/day  
Decay rate: -1.43e-06 rev/day^2  
Epoch rev: 8094  
Checksum: 310

Satellite: U0-11  
Catalog number: 14781  
Epoch time: 94080.50956311  
Element set: 675  
Inclination: 97.7914 deg  
RA of node: 99.3260 deg  
Eccentricity: 0.0011137  
Arg of perigee: 186.0140 deg  
Mean anomaly: 174.0935 deg  
Mean motion: 14.69174575 rev/day  
Decay rate: 3.21e-06 rev/day^2  
Epoch rev: 53743  
Checksum: 307

Satellite: RS-10/11  
Catalog number: 18129  
Epoch time: 94079.84948217  
Element set: 883  
Inclination: 82.9229 deg  
RA of node: 34.1304 deg  
Eccentricity: 0.0010237  
Arg of perigee: 273.8387 deg  
Mean anomaly: 86.1598 deg  
Mean motion: 13.72333391 rev/day  
Decay rate: 3.2e-07 rev/day^2  
Epoch rev: 33779  
Checksum: 330

Satellite: A0-13  
Catalog number: 19216  
Epoch time: 94079.56167208  
Element set: 896  
Inclination: 57.8735 deg  
RA of node: 262.2374 deg  
Eccentricity: 0.7209738  
Arg of perigee: 337.3974 deg  
Mean anomaly: 2.4979 deg  
Mean motion: 2.09727288 rev/day  
Decay rate: -4.27e-06 rev/day^2  
Epoch rev: 4415  
Checksum: 357

Satellite: F0-20  
Catalog number: 20480  
Epoch time: 94080.89109631  
Element set: 670  
Inclination: 99.0243 deg  
RA of node: 249.2547 deg  
Eccentricity: 0.0540894  
Arg of perigee: 177.1640 deg  
Mean anomaly: 183.2749 deg  
Mean motion: 12.83224747 rev/day  
Decay rate: -1.6e-07 rev/day^2  
Epoch rev: 19293  
Checksum: 320

Satellite: A0-21  
Catalog number: 21087  
Epoch time: 94080.39087956  
Element set: 446  
Inclination: 82.9379 deg  
RA of node: 207.6619 deg  
Eccentricity: 0.0035401  
Arg of perigee: 331.2194 deg  
Mean anomaly: 28.7007 deg  
Mean motion: 13.74536127 rev/day  
Decay rate: 9.3e-07 rev/day^2  
Epoch rev: 15752  
Checksum: 314

Satellite: RS-12/13  
Catalog number: 21089  
Epoch time: 94079.90823919  
Element set: 673  
Inclination: 82.9180 deg

RA of node: 76.9195 deg  
Eccentricity: 0.0029938  
Arg of perigee: 357.6064 deg  
Mean anomaly: 2.4956 deg  
Mean motion: 13.74037183 rev/day  
Decay rate: 3.2e-07 rev/day^2  
Epoch rev: 15652  
Checksum: 338

Satellite: ARSENE  
Catalog number: 22654  
Epoch time: 94064.50000000  
Element set: 246  
Inclination: 1.6510 deg  
RA of node: 105.2680 deg  
Eccentricity: 0.2927552  
Arg of perigee: 173.8780 deg  
Mean anomaly: 198.1380 deg  
Mean motion: 1.42201225 rev/day  
Decay rate: -1.19e-06 rev/day^2  
Epoch rev: 299  
Checksum: 250

/EX

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Date: Fri, 25 Mar 1994 06:54:00 MST  
From: usc!math.ohio-state.edu!cyber2.cyberstore.ca!nntp.cs.ubc.ca!utcsri!  
newsflash.concordia.ca!canopus.cc.umanitoba.ca!tribune.usask.ca!  
kakwa.ucs.ualberta.ca!quartz.ucs.ualberta.@@ihnp4.ucsd.edu  
Subject: ORBS\$084.WEATH.AMSAT  
To: ham-space@ucsd.edu

SB KEPS @ AMSAT \$ORBS-084.W  
Orbital Elements 084.WEATHER

HR AMSAT ORBITAL ELEMENTS FOR WEATHER SATELLITES  
FROM WA5QGD FORT WORTH, TX March 25, 1994  
BID: \$ORBS-084.W  
TO ALL RADIO AMATEURS BT

Satellite: NOAA-9  
Catalog number: 15427  
Epoch time: 94081.96146229  
Element set: 759  
Inclination: 99.0648 deg  
RA of node: 131.4010 deg

Eccentricity: 0.0015937  
Arg of perigee: 101.6666 deg  
Mean anomaly: 258.6297 deg  
Mean motion: 14.13600524 rev/day  
Decay rate: 1.21e-06 rev/day^2  
Epoch rev: 47816  
Checksum: 312

Satellite: NOAA-10  
Catalog number: 16969  
Epoch time: 94082.90887763  
Element set: 658  
Inclination: 98.5123 deg  
RA of node: 94.5094 deg  
Eccentricity: 0.0012333  
Arg of perigee: 216.3165 deg  
Mean anomaly: 143.7179 deg  
Mean motion: 14.24874536 rev/day  
Decay rate: 6.4e-07 rev/day^2  
Epoch rev: 39046  
Checksum: 336

Satellite: MET-2/17  
Catalog number: 18820  
Epoch time: 94080.22884509  
Element set: 273  
Inclination: 82.5454 deg  
RA of node: 338.5623 deg  
Eccentricity: 0.0018465  
Arg of perigee: 67.8592 deg  
Mean anomaly: 292.4524 deg  
Mean motion: 13.84711844 rev/day  
Decay rate: 9.4e-07 rev/day^2  
Epoch rev: 31018  
Checksum: 325

Satellite: MET-3/2  
Catalog number: 19336  
Epoch time: 94081.32685617  
Element set: 270  
Inclination: 82.5427 deg  
RA of node: 25.1440 deg  
Eccentricity: 0.0017958  
Arg of perigee: 116.8969 deg  
Mean anomaly: 243.3993 deg  
Mean motion: 13.16965967 rev/day  
Decay rate: 5.1e-07 rev/day^2  
Epoch rev: 27182

Checksum: 333

Satellite: NOAA-11  
Catalog number: 19531  
Epoch time: 94083.23885812  
Element set: 572  
Inclination: 99.1670 deg  
RA of node: 70.0925 deg  
Eccentricity: 0.0012545  
Arg of perigee: 15.7107 deg  
Mean anomaly: 344.4450 deg  
Mean motion: 14.12969487 rev/day  
Decay rate: 6.2e-07 rev/day^2  
Epoch rev: 28322  
Checksum: 300

Satellite: MET-2/18  
Catalog number: 19851  
Epoch time: 94080.40680956  
Element set: 272  
Inclination: 82.5191 deg  
RA of node: 213.8899 deg  
Eccentricity: 0.0015509  
Arg of perigee: 110.5826 deg  
Mean anomaly: 249.6996 deg  
Mean motion: 13.84358994 rev/day  
Decay rate: 3.4e-07 rev/day^2  
Epoch rev: 25554  
Checksum: 352

Satellite: MET-3/3  
Catalog number: 20305  
Epoch time: 94082.55451529  
Element set: 6  
Inclination: 82.5548 deg  
RA of node: 329.1930 deg  
Eccentricity: 0.0006520  
Arg of perigee: 134.5372 deg  
Mean anomaly: 225.6269 deg  
Mean motion: 13.04425118 rev/day  
Decay rate: 4.4e-07 rev/day^2  
Epoch rev: 21173  
Checksum: 272

Satellite: MET-2/19  
Catalog number: 20670  
Epoch time: 94080.04388230  
Element set: 774

Inclination: 82.5426 deg  
RA of node: 278.4813 deg  
Eccentricity: 0.0017557  
Arg of perigee: 35.8879 deg  
Mean anomaly: 324.3453 deg  
Mean motion: 13.84190186 rev/day  
Decay rate: 2.4e-07 rev/day^2  
Epoch rev: 18842  
Checksum: 324

Satellite: FY-1/2  
Catalog number: 20788  
Epoch time: 94082.50755940  
Element set: 924  
Inclination: 98.8351 deg  
RA of node: 105.3769 deg  
Eccentricity: 0.0013462  
Arg of perigee: 244.9487 deg  
Mean anomaly: 115.0282 deg  
Mean motion: 14.01311177 rev/day  
Decay rate: -1.52e-06 rev/day^2  
Epoch rev: 18170  
Checksum: 301

Satellite: MET-2/20  
Catalog number: 20826  
Epoch time: 94081.16757303  
Element set: 783  
Inclination: 82.5237 deg  
RA of node: 215.2023 deg  
Eccentricity: 0.0012267  
Arg of perigee: 296.1467 deg  
Mean anomaly: 63.8429 deg  
Mean motion: 13.83574940 rev/day  
Decay rate: 4.6e-07 rev/day^2  
Epoch rev: 17572  
Checksum: 308

Satellite: MET-3/4  
Catalog number: 21232  
Epoch time: 94080.99666993  
Element set: 681  
Inclination: 82.5384 deg  
RA of node: 231.2188 deg  
Eccentricity: 0.0014561  
Arg of perigee: 45.1711 deg  
Mean anomaly: 315.0592 deg  
Mean motion: 13.16460562 rev/day

Decay rate: 5.1e-07 rev/day^2  
Epoch rev: 13988  
Checksum: 306

Satellite: NOAA-12  
Catalog number: 21263  
Epoch time: 94074.00396538  
Element set: 964  
Inclination: 98.6278 deg  
RA of node: 103.8182 deg  
Eccentricity: 0.0013418  
Arg of perigee: 145.8585 deg  
Mean anomaly: 214.3456 deg  
Mean motion: 14.22379795 rev/day  
Decay rate: 1.80e-06 rev/day^2  
Epoch rev: 14714  
Checksum: 320

Satellite: MET-3/5  
Catalog number: 21655  
Epoch time: 94080.22430161  
Element set: 688  
Inclination: 82.5573 deg  
RA of node: 178.8593 deg  
Eccentricity: 0.0014769  
Arg of perigee: 59.6601 deg  
Mean anomaly: 300.6003 deg  
Mean motion: 13.16828445 rev/day  
Decay rate: 5.1e-07 rev/day^2  
Epoch rev: 12488  
Checksum: 308

Satellite: MET-2/21  
Catalog number: 22782  
Epoch time: 94080.53840969  
Element set: 283  
Inclination: 82.5471 deg  
RA of node: 275.8954 deg  
Eccentricity: 0.0023357  
Arg of perigee: 108.2430 deg  
Mean anomaly: 252.1263 deg  
Mean motion: 13.83002864 rev/day  
Decay rate: 2.6e-07 rev/day^2  
Epoch rev: 2797  
Checksum: 309

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End of Ham-Space Digest V94 #72

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